(12) UK Patent Application (19) GB (11) 2 269 635 (13) A

(43) Date of A Publication 16.02.1994

(21) Application No 9210026.2

(22) Date of Filing 09.05.1992

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(51) INT CL[5]
F03B 17/04

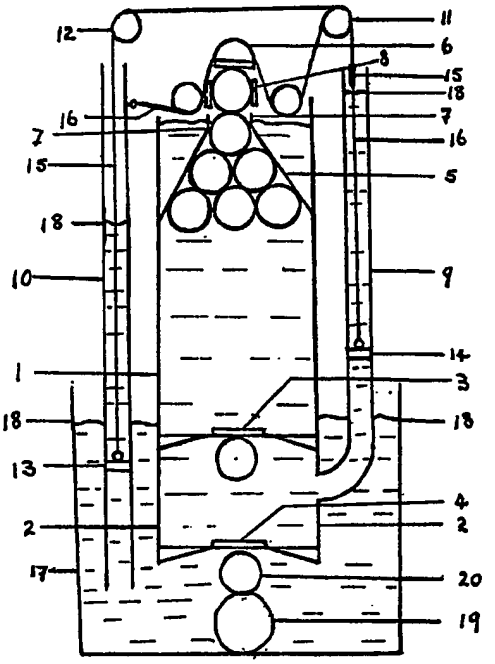
(52) UK CL (Edition M)
F1S S23
F1Q QX Q219 Q511

(56) Documents Cited
WO 93/04280 A
Arthur W.J.G. Ord-Hume, "Perpetual motion, the history of an obsession" 1977, George Allen & Unwin pages 104 to 107.

(58) Field of Search
UK CL (Edition L) F1Q QX, F1S
INT CL[5] F03B

(54) Buoyancy motor.

(57) The apparatus comprises two water-filled containers 17, 2. Floats 20, introduced via pipe 19, rise towards a conical mesh via valves 3, 4, and a water lock 2, and are directed into contact with a lever 6, thereby exerting a force on the lever to produce useful work. The lever operates an hydraulic pump, and an associated hydraulic system (fig. 2) supplies oil to drive a turbine (50) and to actuate a mechanism (57, 58, 60) for moving floats from the lever back into the pipe 19 to recirculate them to the base of the apparatus. Pistons 13, 14 are arranged in tubes 9, 10, and are connected by a rope 15. A further rope 16 is tensioned and slackened by movement of the lever 6, causing movement of the pistons in such a way as to compensate for fluid displacement as the floats pass from container 17, through water lock 2. The apparatus is pressurised and is stated to operate without the need for fuel.



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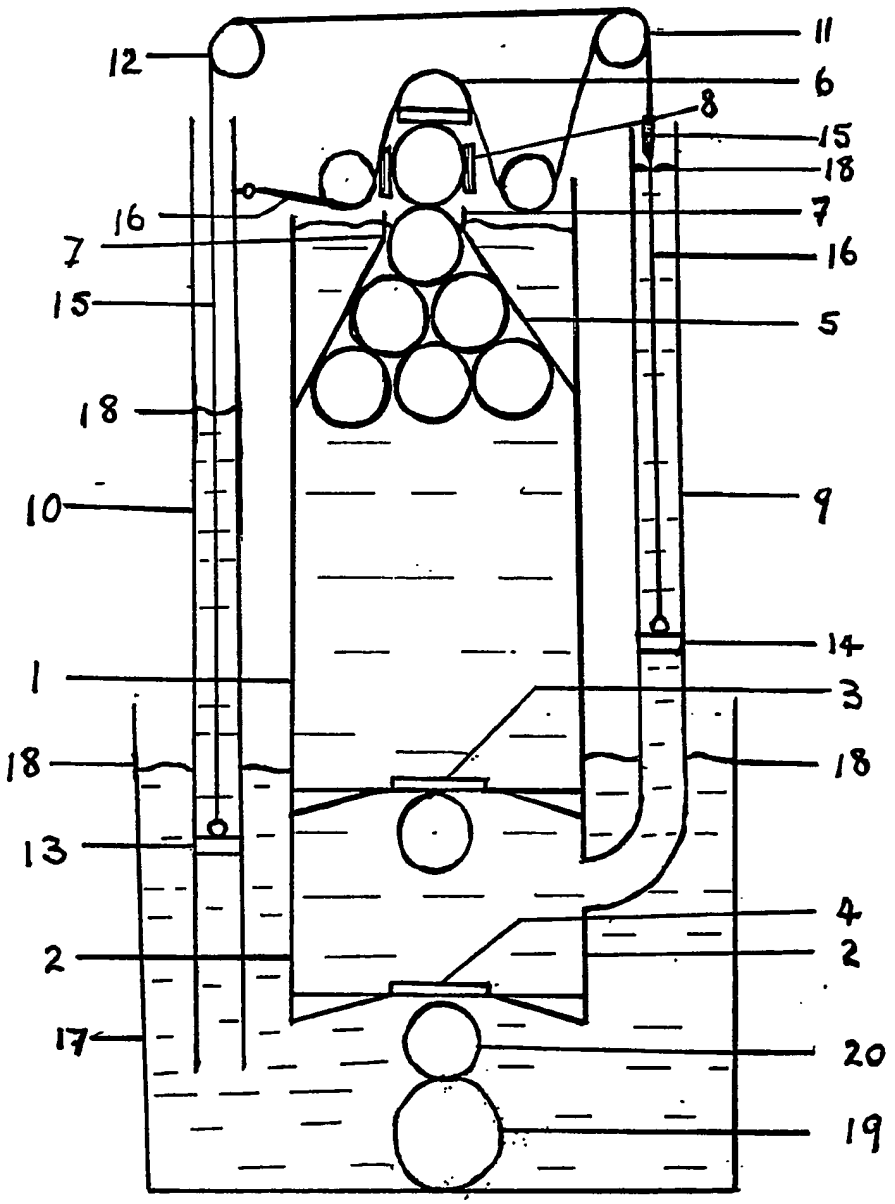
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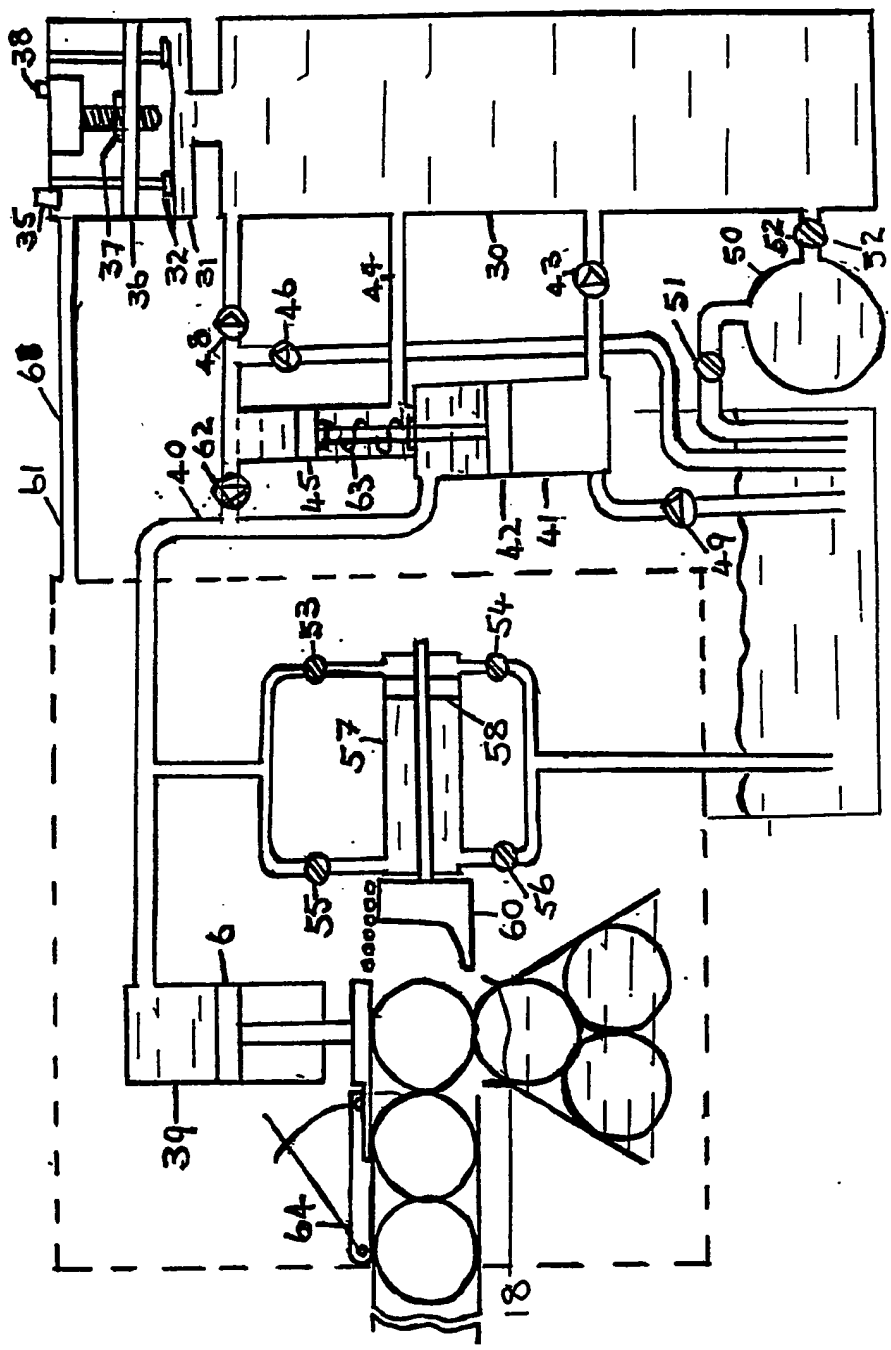
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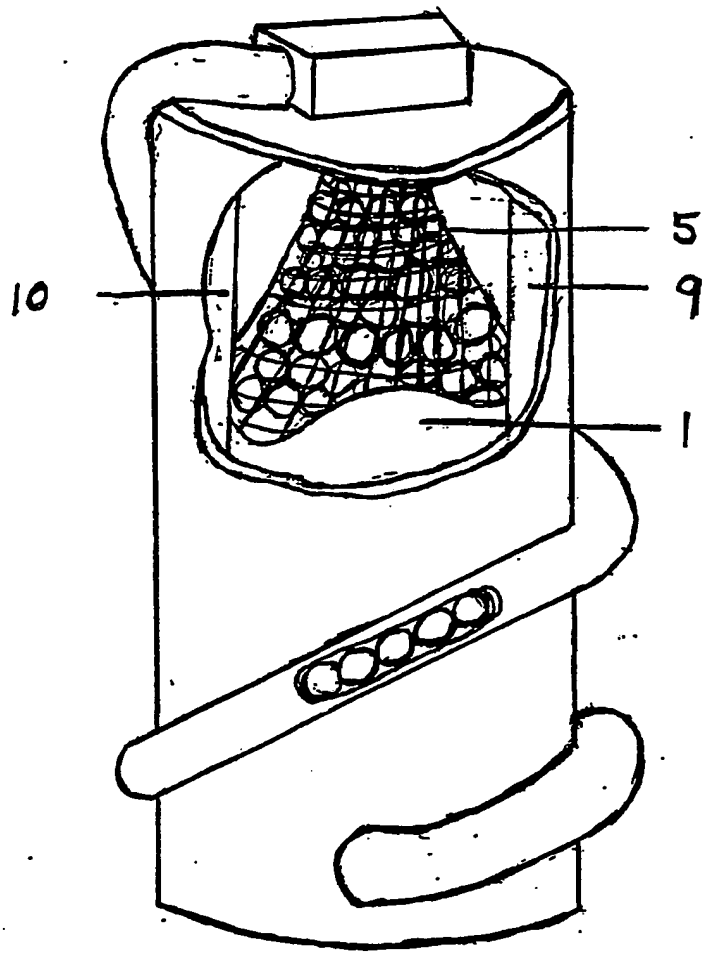
THE PERMANENT ENERGY MACHINE

This invention is related to the technical field of prime movers. These well known machines produce torque which is directed pressure obtained by burning fuel to cause heat. This machine however, produces torque by utilising a maintained cold pressure field. The upthrust of a float emersed in water can be noticed when several floats are grouped together and emersed the resultant force is substantial, and when thetank with floats is enclosed within a pressure vessel and compressed air is forced in to create a pressure of say 100 P.S.I. then this machine operating pressure is upgraded to that of steam operated prime movers. When this group of floats is also formed into a pymarid, the pressure exerted by the apex float to concentrate on an operating lever to perform useful work is magnified. Apneumatic or hydraulic pump system can upgrade this pressure still further to produce a powerful commercial machine. The removal of this apex float after the mechanical lever stroke, and subsequent directing to the underside of the pyramid, allows a maintained pressure field. The directed kenetic energy is derived from gravity and its inverse force buoyancy. There is no other fuel requirement, no waste problem and this machine operates quietly. It is also safe for both man and his environment. This machine offers advantage in the field of prime movers.

To convey the concept of this machine, drawings are used to depict one part relative to another. For the sake of clarity supports and fixings, which are general knowledge in the field of engineering, are omitted unless functional with machine operation. This machine incorporates two water tanks depicted by sketch 1/3. The main tank 1. has a seperated chamber 2. which acts as a constantly flooded water lock. There are two trapdoors installed, one in the partitioning bulkhead labelled 3. and the other at the bottom of the water lock 4. In the main tank above the lock is a fixed meshed cone.5. This collects free rising floats passing through the waterlock and forms them into a pyramid to present them from its apex in single file via a short tube.7. to an operating lever .6. an escapement mechanism associated with this operating lever removes the float .20. at the completion of the lever stroke and directs it to the underside of the water lock by conduit .19. The float then passes through the lock to rejoin the pymarid and helps maintain the pressure By taking turn and jostling in line, the float works its own way to the apex, to press on the operating lever or pump piston rod again, and carries on to a further cycle. The entire group of floats move upwards while pressing on the operating lever .6. to perform useful work. This pressure creates an intrinsic bias, which is constructed into the machine and then maintained by adding a float to the pyramid underside, as one is removed from the apex. This allows the machine to perform useful work continuously or intermittently when called upon to respond to a control mechanism. A simple arrangement, but very important integral system is created called a compensator. They are two tubes .9. and .10. Each tube has a piston with a column of water above it. These water columns are equal in weight, these pistons are connected together by a rope .15. The tubes are open at both ends, one tube .9. feeds into the water lock at its lower end. The other tube .10. feeds into the sealing tank .17. An operating rope .16. is affixed to a bracket on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the main tank side, and leads down to piston .14. when operating lever .6. is pushed upwards by the pyramid of floats, rope .16. is tensioned and pulls piston .14. up in sympathy. Piston .13. with its own water column above is lowered downwards in antiphase by interconnecting rope .15. When float .20. which is pressing on the operating lever is removed at the end of the lever stroke, tension is released, on rope .16. and this rope becomes slack. These pistons .13. and .14. along with their respective water columns seek equilibrium via interconnecting rope .15. which is supported by two free running pulleys .11. and .12. To assist if required, a further rope, not shown on sketch can be used connected from operating lever 6 to piston .13.

When piston .14. was pulled upwards, water was drawn into the lower part of the tube .9. from the water lock. Pressure within this lock relative to the main tank and sealing tank dropped, trapdoor .3. sealed shut, and trapdoor .4. opened to allow water from the sealing tank in. Water drained from beneath piston .13. out of tube .10. into the sealing tank to replenish the water moved into the lock. When piston .14. was released and travelled downwards, the lock pressure reversed as the water columns balanced. The water head of tube .9. was lifted higher then the water level of the main tank to allow a pressure reversal across trapdoor .3. and seal shut trapdoor .4. The pressure field is created by a collection of floats, each float in turn circulates round the machine.

To follow a float throughout its cycle one will be joined as it approaches to rest on the lower trapdoor .4. after entering the sealing tank from the conduit which directed it from the operating lever.

Examination of the sketch 1/3 shows a displacement of a large quantity of water by the main tank situated within the sealing tank. This water displacement creates an upthrust on the float .20. The float therefore opens the lower trapdoor .4. with ease as this force is added to its buoyancy. The float enters the lock and rests on the underside of the upper trapdoor .3. within the lock. The water above the trapdoor prevents ingress of the float into the main tank, until after the pressure reversal created by the compensator, already explained. When this float entered the sealing tank, water equivalent to its volume was displaced. The rise of piston .14. however transfered this displacement into tube .9. to be temparary held. The theoretical hole left by the float entering the lock is filled by water draining down from tube .10. On release of piston .14. the float enters the main tank and theoretically leaves a hole in the lock water behind it. Water would normally drain from the main tank to the lock, but this automatic drain negated by the plug of water held by tube .9. draining and filling this hole before hand. The timing of this compensator is not crucial as only one float in turn is allowed access to the water lock from the conduit, and the compensator operates only once per float. The descent of piston .14. reverses the pressure across the upper trapdoor .3. and allows the float access to the main tank where it can float upwards to rejoin the pressure

pyramid. This float then by jostling finds its way to the apex position, to be presented by a short tube to the lever, pneumatic or hydraulic pump. This compensator then performs two operations, one is to negate automatic drain by compensating for water displacement, and the other is to provide a reversal of water lock pressure. Sketch 1/3 depicts one float approaching the lower trapdoor .4. and another resting on the upper trapdoor .3. another float would be leaving the conduit by being forced out by a piston or ejecting lever. When piston .14. descends and increases the water lock pressure the float resting on the upper trapdoor enters the main tank. The lower trapdoor is sealed shut by this same pressure rise. When piston .14. rises the lower float enters the lock, because of the drop in lock pressure. At the end of the operating leverstroke the float held at the end of the conduit is forced out by the force provided by the escapement piston .58. The float can be timed to operate with a differant space between them. As two floats could enter the lock at the same time if set too close together. They would however, clear the lock together on one downstroke of piston .14.. The speed operation is fast and normally a float leaves the conduit at the same time as another float enters the main tank via upper trapdoor .3. There is no resting of the float on the lower trapdoor .4. The sealing tank water level can be adjusted to accomodate this gateing. As an alternative electrical or mechanical latches can be used for the trapdoor timing. Pistons .13. and .14. could be operated and balanced by hydraulic or electrical means but the resultant operation will be the same. The entrance to each trapdoor is shown with the conic sleeve fitted. This directs a float to the trapdoor. The output systems of this permanent energy machine can vary from a simple lever to a complex pneumatic/hydraulic system. This latter system will be described, as it presents a better commercial system than any other. This system is based on the principle of two independant tanks, one tank being an hydraulic pressure tank, and the other a compressed air tank. Both tanks are connected by a cylinder with a dividing piston. The cylinder top half being connected to the compressed air tank and the lower half to the oil tank. The hydraulic oil is not compressable but if compressed air is on one side of this piston, the oil on the other side would spurt from a leak or operate another piston at pressure. This means that an hydraulic system can be pressurised with a standing pressure. This machine is biased with a standing pressure which could be compressed air at 1000 P.S.I. The standing float pyramid pressure could be 100 P.S.I. This means the normal working pressure of this machine is 1100 P.S.I. from operating piston .6. to a recovery tank at atmospheric pressure. There is a pressure tank fully flooded with oil connected at its top, to the lower hydraulic half of the cylinder 31 which fits the discription already given. Its upper half is pressurised with compressed air at 1000 P.S.I. There is a free moving piston which floats on the oil, and is guided by loose fitting guides which termenate at their lower ends into stops for the piston. The piston 36 is free to move and respond to the pressured oil level. The more oil pumped in the higher the pressure. To prevent the pressure exceeding a safety limit for the external pipes etc., an air motor 34 is fitted. Its inlet is open to ambient pressure within the tank 31. Its exhaust is led to normal atmosphere via a control

valve 38. This motor operates a screw nut 37. which rests on but is not fixed to the piston 36. The nut 37. therefore acts as an upper stop, which prevents the piston rising and compressing the air to a higher standing pressure than that which is safe to work with.

The lower stops .32. are fitted to de-pressure the hydraulic system if an oil pipe is fractured or a seal becomes faulty. The piston .36. resting on these stops would divide the pressure vessel into two independent parts. The upper half would be at a lower standing pressure, but more important the hydraulic pressure would quickly reduce to nill as the pressure above the piston would be cancelled by an opposite force offered by the stops. So the machine would remain safe. An air line fracture would be delt with by inserting a normal one way ball valve where the pipe joins its pressure end. So again this highly pressurised machine would be safe. A safety valve similar to a steam operated one is fitted in case the air motor becomes faulty. A connecting air line .61. is led from the top of the pressure tank .31. to the top of the pressure vessel enclosing the permanent energy machine. This machine pressure is now upgraded to 1000P.S.I. which reflects as buoyancy. The buoyancy pressure multiplies by the machine design to show itself on the operating lever .6. which now operates at 1000 P.S.I. standing pressure plus say with modesty 100 P.S.I. from the normal float buoyancy multiplied by a factor design acting on the 1100P.S.I. These pressures are really for very large isolated plant operation and could be reduced to suite the smaller plant if required. Pressures ten times less would be adequate for factories or small housing groups. Piston reciprocating machines could be used for driving machinery, or generating electricity.

The floats operate piston .6. by pushing it upwards its cylinder .39. is flooded with hydraulic oil which is pressured and led by pipe line .40. to the upper part of .41. the recovery pump. Piston .6. rises and piston .42. descends forcing oil via a non-return valve .43. into tank .30. A piston rod connects this piston .42. to another piston .45. This also descends and forces oil via pipe .44. into tank .30. Oil is drawn from the recovery tank .47. via non-return valve .46. into the top of piston .45. The pressure used to force oil against the pressure of tank .30. is the standing pressure plus the pressure of the pyramid. The standing pressures nulify and so the oil is pressed in at the pyramid pressure, which is still substantial enough to replenish tank .30. which is being constantly drained by the turbine .50. The volume of the cylinder of piston .42. is made sufficient to compensate for this drain, but any sudden short demands of loading is adjusted by piston .36. in the pressuring cylinder .31. The load increase would cause turbine .50. to slow down. But this would create an immediate back pressure in tank .30. this would instantaineously pass to piston .36. which would rise and cause the pressure above it to also rise. This rise in pressure would force the turbine to except the extra load without altering its speed and also vice versa. This gives this machine a constant speed for varying load charateristic a requirement and advantage offered for generation of electricity at a fixed frequency. A control valve .51. with

another .52. could operate by electro magnetic coils wired to line transformers, to vary with the load the relative i nput and output pressures. Piston .6. completes its movement and so also does piston .42. The escapement cylinder .57. with its piston .58. is brought into use by two valves .53 and .56. working on the same rotarary shaft and operated by piston .6. via a mechanism not yet explained. When .53 and .56. open the escapement piston .58. responds to a sudden jump in pressure. As piston .6. nearly completes its stroke, piston 42. fully completes its stroke and shuts off the outlet feed to the non-return valve .43. This means that piston .6. is working to a blind pressure end. So the pressure jumps and this high pressure pulse is fed through .53. rotary valve to the escapement piston .58. This shoots at speed the shaped extention .60. This extention travelling on rollers fixed in line on the machine, to guide it and aim its knife edge between the floats which are still moving. This slicing knife pressure is from the pressuriser .31. via tank .30. pipe .44. starting to drive piston .42. upwards which creates a pressure to feed via pipe .40. valve .53. to piston .58. But simultaneously the pressure from piston .6. is feeding the other way along pipe .40. The combined opposing pressures join to force piston .58. on its travel, as this is the only open end. So extention .60. slices the float from the one below and forces it into the, in line conduit, to be directed to the underside of trapdoor .4. beneath the water lock. Air dampers, not shown, will be required fitting to the escapement piston .58. to absorb the tremendous shock this operation will present. The waste return pipe will also be strong. Piston .6. completes its stroke valves .53 and .56. close valves .55. and .54. open worked by the same shaft. Piston .6. cannot fall because the shaped extension .60. of piston .58. now underneath it and prevents its falling. Piston .6. therefore offers a closed pressure end. So piston .58. shoots now in the opposite direction away from the floats. The escapement piston extention .60. now releases piston .6. which falls by pressure exerted via pipe 44. pressing upwards on piston .42. which pressurises in turn pipe 40. This pressure drives piston .6. down to rest on the next float in line as the tip of the knife edge of extention .60. leaves this float. Rotarary valves .55. and .56. close. Piston .6. is again forced upwards repeating the cycle. The piston rod fitment to the lower part of the piston .6. slides in conjunction with extention .60. to allow the downward full stroke to take place, and prevent out of sequence operation.

The drawings are not to scale. 45 is a double acting piston tied to 42. On its descencing stroke it draws from the recovery tank a volume of oil equivalent to both sides of 58 plus some more. The spring 63 forces this remaining oil via 48 into oil tank .30. after operating .60. both ways. The pressure offered by pipe 44. is the same as that offered by 48 with this operation. The finishing stroke fills cylinder 39 from 41 above 42. This output allows high pressure turbine or receprocating conversion of energy with a lower pressure input. The bias pressure is intrinsic and set at the construction of the machine. Drawing 3/3 shows the escapment conduit. The floats touch in line latch 64 is duplicated at the other end of line but held by spring tension against float shape of last one in line. The whole

line is moved on by 60 a float diameter at a time. The conduit declines to horizontal at a shallow angle. Less force is required for some distance. The same energy is used but the line is biased, and remains so, by having a full line. Fixed rollers for 60 run in two lines, full length of stroke. Rollers at each end of 60 run between these lines to lessen friction and take pressure of floats.

The Permanent Energy Machine

CLAIMS

An advantage within the field of prime movers is offered by providing torque or lateral movement without the demand for fuel.

The pressure used is cold, and therefore safer than hot steam or expanded air.

An output system is depicted which allows a pre-arranged pressure to pressurise an hydraulic system. The arrangement allows a high operating pressure with a much lower input pressure to maintain it.

Claims are made for all novel features of the designs explained in the text, and also by the drawings. Where required new materials and none corrosive materials can be used when requested.

Amendments to the claims have been filed as follows :

THE PERMANENT ENERGY MACHINE

1. The Permanent Energy Machine described within the Specification. This machine is composed of a collection of floats held submerged in a tank of liquid. This group of floats is allowed to press as one unit onto a lever or piston to transfer the potential energy of this field of floats to kenetic energy. Then the float acting as an interface between the group of floats and the lever is removed and directed to the underside of this group to maintain the pressure of bouyancy.

2. All normal features of this system described in this application.

3. The relative arrangement of the tanks which by displacement and effect of gravity assist this system to work. As in Claim 1.

4. The lock situated at the base of the large tank 1 allows a float to enter without drain from the main tank. As in Claim 1.

5. The compensator arrangement, which negates drain from the main tank 1 due to liquid displacement of the float on entering. As in Claim 1.

6. The arrangement of tube 19 which transports floats assisted by their weight of material to trapdoor 4 and thereby allows less drain on the output energy. As in Claim 1.

7. The output system describing how the pressure of the PEM output can be upgraded to a higher pressure for special operating requirement. As in Claim 1.

8. All types of material. As in Claim 1.

Patents Act 1977
Examiner's report to the Comptroller under section 17 (The Search Report)

Application number
GB 9210026.2

Relevant Technical fields

(i) UK Cl (Edition L) F1S, F1Q (QX)

(ii) Int Cl (Edition 5) F03B

Search Examiner
C B VOSPER

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search
17 AUGUST 1993

Documents considered relevant following a search in respect of claims

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
A	WO 93/04280 (VALCOURT) note English abstract and drawings	
A	ARTHUR W J G ORD-HUME, "PERPETUAL MOTION the history of an obsession" 1977, George Allen & Unwin, pages 104 to 107 Note Figure 68 and description relating thereto	

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

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